

N.C. Data Validation of the AASHTO SHSP

A. C. "Cliff" Braam, P.E.



Presentation Overview

- Brief overview/summary of North Carolina's data as related to the Key Emphasis Areas of the AASHTO SHSP
- Data utilized was most current 3 years (2000-2001), unless otherwise noted
 - Taken from either DMV's Crash Facts Book or from querying the Crash database directly
- Not intended to discuss the strategies or current initiatives



1. Instituting Graduated Licensing for Young Drivers

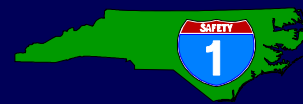
- Defining the “Young” Driver:
 - 16 - 20 years of age
- 3 Year Driver Totals
 - 174,500 Crashes (39.7% of all)
 - 977 Fatalities (20.9% of all)
 - 128,693 Injuries (31.5% of all)



2. Ensuring Drivers are Licensed and Fully Competent

License of Driver	1999		
	Fatal	Injury	All
	Crashes	Crashes	Crashes
Licensed In State	1,365	126,952	282,623
Resident - No License	487	30,677	67,797
Other State License	185	9,113	21,811
Not Stated	48	2,383	5,787
Total Drivers	2,085	169,125	378,018

23.4% of drivers involved in fatal crashes were unlicensed



2. Ensuring Drivers are Licensed and Fully Competent

Violation	All Crashes	Fatal Crashes	Injury Crashes
Speed	22.3%	34.4%	18.0%
Other	52.5%	53.1%	55.6%
None	27.3%	11.2%	25.5%
Not Stated	2.4%	1.4%	0.9%

2000-2002
Violations by
Crash Type

Violations in Crashes

74.8% of all Crashes

87.4% of all Fatal Crashes

73.7% of all Injury Crashes



3. Sustaining Proficiency in Older Drivers

- Defining the “Older” Driver:
 - 65 years of age and older
- 3 Year Driver Totals
 - 83,464 Crashes (19.0% of all)
 - 866 Fatalities (18.6% of all)
 - 58,662 Injuries (14.3% of all)



4. Curbing Aggressive Driving

Contributing Circumstance	% of Statewide	
	Fatalities	Injuries
Disregarded Traffic Control Device	8.6%	9.8%
Speed Involved Crash	39.8%	15.7%
Improper Lane Change	1.0%	2.0%
Passing Crashes	1.4%	1.1%
Followed Too Closely	0.3%	3.6%
Operated vehicle in erratic, reckless, careless, negligent or aggressive manner	16.3%	6.4%
All Above Circumstances	55.2%	34.9%



5. Reducing Impaired Driving

	No.	All		Percent of Statewide		
Year	Crashes	Fatals	Injuries	Crashes	Fatals	Injuries
2000	13,613	465	12,053	6.2%	29.8%	8.5%
2001	14,183	374	11,712	6.5%	24.4%	8.7%
2002	12,290	384	10,766	5.5%	24.4%	8.1%
Avg.	13,362	408	11,510	6.1%	26.2%	8.4%

2000-2003
Alcohol Related Crashes



6. Keeping Drivers Alert

- Analysis of “Driver Physical Condition”
 - Includes: illness, fatigued, fell asleep, intoxication, medical condition, physical impairment, & restrictions not complied with
- 3 Year averages where driver condition other than normal was noted
 - 5.4% of All Crashes
 - 32.9% of Fatal Crashes
 - 7.1% of Injury Crashes



7. Increasing Driver Safety Awareness

- Lots of Data here; Refer to table of Contributing Circumstances in handout
- Sort data by Fatal, Injury and All Crashes:
 - **Fatal:** *Exceeded Authorized Speed, Crossed Centerline/Going Wrong Way*
 - **Injury:** *Failure to Reduce Speed, Inattention, Failure to Yield Right of Way, Exceeded Safe Speed for Conditions, Crossed Centerline/Going Wrong Way, Exceeded Authorized Speed Limit*
 - **All:** *Failure to Reduce Speed, Inattention, Exceeded Safe Speed for Conditions, Crossed Centerline/Going Wrong Way, Exceeded Authorized Speed Limit*



8. Increasing Seat Belt Usage and Improving Airbag Effectiveness

- Data not reliable for Airbag statistics
- Seat Belt Usage
 - *95.4% usage*



9. Making Walking and Street Crossing Easier

- 11% of all fatalities are pedestrians
- NC ranked 10th in the nation in pedestrian fatalities each year between 1999 and 2001
- Pedestrian Fatalities:
 - 69% occurred either at dusk or at night,
 - 70% occurred on roads with a posted speed limit ≥ 45 MPH,
 - 78% occurred more than 50 feet from an intersection,
 - 80% of the pedestrians were partially or wholly at fault,
 - 72% of the pedestrians were male, and
 - 33% of the pedestrians had consumed alcohol



10. Ensuring Safer Bicycle Travel

- 1% of all fatalities are bicyclists
- NC ranked 8th or higher in the nation in bicycle fatalities between 1999 and 2001
- Bicycle Fatalities:
 - 45% occurred while the motorist and the bicyclist were on parallel paths and the motorist was overtaking the bicyclist (i.e. coming from behind),
 - 40% occurred either at dusk or at night,
 - 72% occurred on roads with a posted speed limit \geq 45 MPH,
 - 73% of the bicyclists were partially or wholly at fault,
 - 34% of the bicyclists were under the age of 16,
 - 88% of the bicyclists were male, and
 - 17% of the bicyclists had consumed alcohol.



11. Improving Motorcycle Safety & Increasing Motorcycle Awareness

- Fatalities increased each of the last 3 years -
89 (5.7%), 102 (6.7%), 114 (7.2%)
 - 2000; 89 or 5.7% of all
 - 2001; 102 or 6.7% of all
 - 2002; 114 or 7.2% of all
- Top 15 counties account for 48.8% of all motorcycle related fatalities
- Motorcycles only account for 1.3% of all registered vehicles, but 6.5% of all fatalities



12. Making Truck Travel Safer

Year	Crashes			% of Statewide	
	Total	Fatal	Injuries	Fatalities	Injuries
2000	8,046	151	4,388	9.7%	3.1%
2001	6,981	156	3,756	10.2%	2.8%
2002	7,258	136	3,897	8.6%	2.9%

2000-2002 Truck Crashes

■ Trucks/Commercial Motor Vehicles defined as:

- Truck/Trailer
- Truck/Tractor
- Tractor/Semi-Trailer
- Tractor/Doubles
- Unknown Heavy Truck



13. Increasing Safety Enhancements in Vehicles

- No Crash Data Available



14. Reducing Vehicle-Train Crashes

					% Statewide	
					Persons Killed	Persons Injured
2000	RR Train	All Crashes 35	Persons Killed 2	Persons Injured 24	0.128%	0.017%
2001	RR Train	16	1	10	0.065%	0.007%
2002	RR Train	16	0	9	0.000%	0.007%

2000-2002 Train Related Crashes



15. Keeping Vehicles on the Roadway

	Crashes			People		% of Statewide	
Year	Total	Fatal	Injuries	Fatalities	Injuries	Fatalities	Injuries
2000	52,585	855	26,133	960	38,770	61.6%	27.4%
2001	49,955	868	25,238	986	37,588	64.3%	28.0%
2002	55,081	909	26,697	1,014	39,912	64.3%	29.9%

2000-2002 Run-Off-Road Crashes



16. Minimizing the Consequences of Leaving the Road

	Crashes			People		% of Statewide	
Year	Total	Fatal	Injuries	Fatalities	Injuries	Fatalities	Injuries
2000	42,185	640	20,506	706	30,007	45.3%	21.2%
2001	39,923	638	19,681	725	28,498	47.3%	21.2%
2002	44,812	704	21,018	777	30,470	49.3%	22.9%

2000-2002 Hit Fixed Object Crashes

Overlap between Ran-Off-Road and Hit Fixed Object Crashes

Fixed Objects Struck

- 25.5% Ditch
- 19.7% Tree
- 9.1% Utility Pole



17. Improving the Design and Operation of Highway Intersections

	Crashes			People		% of Statewide	
Year	Total	Fatal	Injuries	Fatalities	Injuries	Fatalities	Injuries
2000	57,237	296	26,341	328	46,616	21.0%	33.0%
2001	60,938	292	27,399	325	47,755	21.2%	35.6%
2002	61,014	285	26,700	317	46,682	20.1%	35.0%

2000-2002 Intersection Crashes



18. Reducing Head-On and Across-Median Crashes

	Crashes			People		% of Statewide	
Year	Total	Fatal	Injuries	Fatalities	Injuries	Fatalities	Injuries
2000	5,371	213	3,348	255	7,490	16.4%	5.3%
2001	4,712	187	3,000	235	6,742	15.3%	5.0%
2002	4,708	168	2,946	203	6,399	12.9%	4.8%

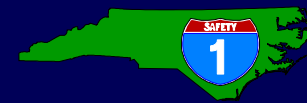
2000-2002 Head-On Crashes



18. Reducing Head-On and Across-Median Crashes

Fatal Crashes	All Crashes	Predicted	Actual	Fatal Crashes Saved
1999	178.0	30.4	24.0	6.4
2000	191.0	32.7	23.0	9.7
2001	160.0	27.4	7.0	20.4
Through July 2002	79.0	13.5	7.0	6.5
				43.0
Fatalities	All Crashes	Predicted	Actual	Fatalities Saved
1999	207.0	44.2	30.0	14.2
2000	226.0	48.3	36.0	12.3
2001	183.0	39.1	11.0	28.1
Through July 2002	94.0	20.1	8.0	12.1
				66.7

1999-2002 Across Median Crashes



19. Designing Safer Work Zones

Year	Crashes	Fatal	Injury	% of Statewide	
				Fatalities	Injuries
2000	3,394	33	2,345	2.1%	1.7%
2001	3,957	35	2,706	2.3%	2.0%
2002	4,552	39	2,975	2.5%	2.2%

2000-2002 Work Zone Crashes



20. Enhancing Emergency Medical Capabilities to Increase Survivability

	Fatal			A Injuries			B Injuries			C Injuries			PDO		
Year	Total	Used EMS	%	Total	Used EMS	%	Total	Used EMS	%	Total	Used EMS	%	Total	Used EMS	%
2000	1,449	1,234	85%	4,697	3,825	81%	23,830	15,898	67%	61,482	23,109	38%	174,523	2,296	1%
2001	1,393	1,226	88%	3,612	3,022	84%	22,004	15,005	68%	60,576	23,686	39%	171,155	2,144	1%
2002	1,467	1,227	84%	3,412	2,882	84%	21,613	15,403	71%	60,532	25,310	42%	182,702	2,753	2%

2000-2002 Utilization of EMS Services

Need to link to EMS or other records to better determine needs; response times, urban vs. rural issues, etc.



21. Improving Information and Decision Support Systems

- No crash data for this area
- Dependent on identification of the various agencies to identify
- Good candidate for “write in ballot” when prioritizing needs



22. Creating More Effective Processes and Safety Management Systems

The Executive Committee for Highway Safety



Questions?

